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PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket No.: MAUSE

In re Application of:	)
	)
ELMAR MAUSE et al.	) **Examiner: Patel, Vishal A**
	)
Serial No.: 10/677,637	) **Group Art Unit: 3676**
	)
Filed: October 2, 2003	)
	)
For: LIP-TYPE SHAFT SEAL	)

BRIEF OF APPEAL

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450", on **November 7, 2005.**
(Date)

HENRY M. FEIEREISEN
Name of Registered Representative

Signature

11-7-2005
Date of Signature

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S I R:

This is an appeal from the final rejection of claims 1, 5, 12, 14, 27-29, 32-36 by the Primary Examiner. The Brief is being filed under the provisions of 37 C.F.R. §41.37. A check in the amount of $500.00 to cover the requisite fee set forth in 37 C.F.R. §41.20(b)(2) is attached.

The Commissioner is hereby authorized to charge fees which may be required, or credit any overpayment to Deposit Account No. 06-0502.

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(1) REAL PARTY IN INTEREST

The above-referenced patent application has been assigned to INA-SCHAEFFLER KG, having a place of business at Herzogenaurach, Germany, the real party in interest by virtue of an assignment recorded on January 26, 2004 at reel 014937, frame 0221.

(2) RELATED APPEALS AND INTERFERENCES

There are no and there have been no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(3) STATUS OF CLAIMS

The following claims are in the proceeding:

Claims 2-4, 6-11, 13, 15-26, 30, 31 and 37 are withdrawn. Claim 18 has been withdrawn by the Examiner even though the Examiner agreed during the telephonic interview on December 10, 2004 to retain claim 18 in this application. Applicant confirmed the Examiner's rejoinder of claim 18 in applicant's communication of March 4, 2005, filed in response to the Official Action of November 5, 2004. Reference is made to elected Fig. 1b which shows the subject matter of claim 18.

Claims 1, 5, 27-29, 32-33 and 37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 4,874,261 to Colanzi et al. in view of U.S. Pat. Publ. No. 2003/0127803 to Yokoyama et al., and in further view of U.S. Pat. No. 3,929,340 to Peisker. Claim 37 has been referred to in error because it is withdrawn from further consideration as relating to a non-elected specie.

Claims 12 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Colanzi, Yokoyama and Peisker, and further in view of U.S. Pat. No. 6,789,805 to Sassi.

Claims 34-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Colanzi, Yokoyama and Peisker, and further in view of U.S. Pat. No. 3,973,770 to Burgmann et al.

Claim 36 has not been rejected or objected to.

(4) STATUS OF AMENDMENTS

No amendment under 37 C.F.R §1.116 after issuance of the final rejection. has been filed.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The present invention refers to a lip-type shaft seal as shown in the elected species of Figs. 1, 1a and 1b. The construction of the shaft seal, as set forth in sole independent claim 1, is a combination of specific characteristics that are defined by particular numerical data. The following claim limitations are involved here:

1) The shaft seal has a seal body which is made of elastic material at a Shore A hardness of ≤ 75 and includes a radial sealing lip (7) and an axial sealing lip (11) which connects to the radial sealing lip at a sealing edge (8).

2) The axial sealing lip (11) extends at an angle of ≥ 35° in relation to a symmetry axis of the seal body, when the axial sealing lip (11) has not been installed yet and is under no tension.

3) The axial sealing lip (11) extends from the sealing edge (8) of the radial sealing lip (7) at a length of ≥ 1.4 mm, when the axial sealing lip (11) has not been installed yet.

4) The axial sealing lip (11) rests against the contact surface at an axial overlap of 0.05 to 0.55 mm, when being installed.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Issue 1- Whether claims 1, 5, 27-29, 32-33 and 37 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker?

Issue 2-Whether claims 12 and 14 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker, and further in view of Sassi?

Issue 3-Whether claims 34 and 35 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker, and further in view of Burgmann?

(7) ARGUMENT

Issue 1- Whether claims 1, 5, 27-29, 32-33 and 37 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker?

The Colanzi reference describes a seal for bearings having a shield assembly comprised of a rigid reinforcing member (12) and a resilient covering (13) which surrounds the reinforcing member and is formed in one piece with a flexible lip (9). The Examiner acknowledged that Colanzi fails to disclose the afore-stated claim limitations 1), 2) and 3) of claim 1. With respect to claim limitation 4), the Examiner noted that the axial sealing lip in Colanzi is capable to rest against the contact surface at an axial overlap of 0.05 to 0.55 mm. Appellant disagrees. Colanzi focuses on the installation of the shield assembly (1) in an annular seat (10) by providing an anchoring device which includes a sleeve portion (14) of the reinforcing member (13) and a cylindrical sleeve (19) of the covering (13). When installed, an interference fit is realized between the sleeve (19) and the seat 10 (col. 4, lines 48-54). Colanzi is silent as to any overlap between the axial sealing lip and a contact surface. In fact, Colanzi appears to teach away from such a configuration, when stating in col. 5, lines 4 to 7 that installation of the shield assembly is easy "*since the contact surface between seat and elastomeric sleeve is reduced to nothing more than the zone of the continuous portion 25 and the tops of the ribs 30*". Thus, nothing in Colanzi would lead the skilled artisan to believe that any part of the sealing lip (9) is intended to bear upon the contact surface at an overlap, let alone at an overlap of 0.05 to 0.55 mm. Indeed, the absence of an overlap is also evident from the drawings in Colanzi.

In summary, Colanzi thus fails to disclose any of the four claim limitations 1), 2), 3), 4), as set forth above and recited in claim 1.

To bridge the absence of disclosure in Colanzi, the Examiner applied separate references to show disclosure of the claim limitations 1), 2) and 3). As noted above, the Examiner interpreted the Colanzi reference incorrectly and failed to show any disclosure of claim limitation 4).

With respect to claim limitation 1), the Examiner applied Yokoyama which describes various seal configurations for sealing rolling-contact bearings. Paragraphs [0064] and [0065] of Yokoyama refer to JIS K6301 which relates to the Japanese Industrial Standard for physical testing methods of vulcanized rubber. Nothing in these paragraphs relates to the provision of a Shore A hardness of $\leq$ 75 for the overall seal body. Apart from the fact that Yokayama lacks a disclosure of a Shore A hardness of $\leq$ 75 for the seal body, it is also appellant's contention that Yokayama et al. does not constitute a reference which a person skilled in the art would consider when attempting to solve the problems addressed by the present invention. Yokayama et al. does not relate to shaft seals but to seals that are disposed between the outer ring and the inner ring of a rolling-contact bearing. Fig. 5 illustrates, for example, a three-lip seal arrangement with two axial lips and one radial lip, whereby the lips are arranged in spaced-apart relationship, unlike the present invention in which the axial sealing is directly connected to the radial sealing lip. Yokayama et al is also silent about the construction of the axial sealing lips in uninstalled state and about the other claim limitations 2), 3), 4), as set forth in claim 1.

With respect to claim limitation 2), the Examiner applied the Peisker reference which discloses a seal with pumping action, so-called pumping seals. Like the Yokayama et al. seal, it is applicant's contention that the Peister seal is also non-analogous art. This seal includes an outer steel jacket having on the inside a sealing lip which is bonded to the steel jacket to realize a sealing action in radial direction.

With respect to claim limitation 3), the Examiner made a broad conclusion that "*[D]iscovering an optimum range of a result effective variable involves only routine skill in the art*", and noted further that the absence of "*some unexpected result this inclusion of this limitation is considered to be a matter of choice in design.*". In this context, although not expressly asserted against claim 1, the Examiner referred to U.S. Pat. No. 5,803,617 to Ohnuki to show disclosure of claim limitation 3). Ohnuki relates to a rolling bearing unit with a seal device (13) for support of a vehicle wheel. The seal device includes a reinforcing member (16a) and a seal member (17a) of the three-lips type having side seal lips (18a, 19a) and a radial seal lip (20a). To show the disclosure of claim limitation 3), i.e. length of $\geq$ 1.4 mm of the axial sealing lip, the Examiner noted that the axial size of the space in which the seal device (13) is mounted is about 6.5 mm to about 9.5 mm so that the axial seal lip (19a) necessarily must be at least greater than 1.4 mm, presumably in conjunction with the illustration of Fig. 2.

This argumentation by the Examiner is evidence that the Examiner merely picks a specific disclosure from a reference and combines it with other references in an attempt to produce the present invention. This attempt, however, must fail when there is any absence of suggestion or motivation to make this combination. The Examiner picked and chose among individual parts of assorted prior art references to form a mosaic in order to recreate a facsimile of the claimed invention. It is well established that the use of the claimed invention as an instruction manual or "template" is impermissible to piece together the teachings of the prior art so that the claimed invention is rendered obvious. In re Gorman, 933 F.2d 982. There is no teaching or suggestion supporting the combination as proposed by the Examiner. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d at 902. As stated by the Federal Circuit in *In re Rouffet*, 47 USPQ2d, 1453, 1457 “Most, if not all, inventions are combinations and mostly of old element. Therefore, an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be an illogical and inappropriate process by which to determine patentability.

In the case at hand, claim 1 sets forth a novel and inventive combination of defined features to produce a shaft seal that meets the strict standard for fluid tightness as attested also by the commercial success achieved.

To support this fact, appellant has submitted the Mause declaration which the Examiner found however unpersuasive because of the absence of "*any nexus between any facts*". Appellant disagrees because the Mause declaration shows that commercial success was due to the merits of the claimed invention. The present invention, as set forth in claim 1, is directed to a two-lip seal. As stated in the second full paragraph of the Mause declaration, in order to be successful in Japan, the two-lip seal must show water retention capability that meets the standards of three-lip seals commonly used in Japan at the time of the invention. In the paragraph, bridging pages 2 and 3 of the Mause declaration, reference is made to the features of the shaft seal that is the subject of the instant application. Although, the Mause declaration does not provide the particular numerical data, as recited in claim 1 on appeal, reference is made to defined data, as far as the afore-stated four claim limitations 1), 2), 3), 4) are concerned, i.e. angular disposition, length, overlap and Shore A hardness. Thus, the Mause declaration establishes a nexus between the seal concept as referred to and the invention claimed in claim 1.

In the last paragraph of page 3, reference is made to the seal concept and its introduction in Japan. In paragraph 1 of page 4 of the Mause declaration, declarant refers to the sale of almost 4 million rolling-contact bearings, which incorporate the seal concept of the invention, in Europe as a consequence of sales in Japan. Thus, it is appellant's contention that a clear nexus is established by the

Mause declaration between the commercial success of the seal concept and the invention defined in appealed claim 1.

For the reasons set forth above, it is applicant's contention that neither Colanzi, nor Yokoyama et al., nor Peisker, nor any combination thereof teaches or suggests the features of the present invention, as recited in claim 1.

As for the rejection of claims 5, 27-29, 32-33, these claims depend on claim 1, share its presumably allowable features, and therefore it is respectfully submitted that the rejection of these claims should also be reversed.

As far as argued separately hereinafter, these dependent claims contain individual patentable features per se. In this connection, applicant wishes to refer to claim 5 which sets forth additional specific data for constructing the axial sealing lip by defining the wall thickness of the axial sealing lip. To bridge the absence of a teaching or suggestion of the subject matter of claim 5, the Examiner submits again the broad conclusion that "*[D]iscovering an optimum range of a result effective variable involves only routine skill in the art*". Appellant believes that this rejection is improper in the context of the present invention, without referring to a citation or authority. (*In re Lee*, 61 USPQ2d, 1434, 1435). The subject matter of claim 5 represents another claim limitation that the inventors have contemplated in constructing a seal to provide optimal sealing capabilities. As stated in paragraph **[0008]** of the instant specification, the claimed tapered configuration of the wall thickness provides "*an optimum compromise between a sufficient strength and stiffness, on the one hand, and a desired elasticity, on the other hand.*".

Claim 27 sets forth additional specific data relating to the spring element for acting upon the radial sealing lip. Again the Examiner bridged the absence of teaching or suggestion of the subject matter of claim 27, by making a same broad conclusion of mere design choice, without referring to a citation or authority.

Claims 28 and 29 set forth additional specific data relating to the diameter of the spring element. Again the Examiner bridged the absence of teaching or suggestion of the subject matter of claim 28, 29, by making conclusory statements of generalized nature and convenient assumptions about skilled artisans, without referring to concrete evidence. The subject matter of claims 28 and 29 represents further claim limitations that the inventors have contemplated in constructing a seal to provide optimal sealing capabilities. As stated in paragraph **[0008]** of the instant specification, the claimed diameter range for the spring element results in an optimum compromise to suit installation space, without adversely affecting the configuration of the axial sealing lip.

It is therefore respectfully submitted that the rejection of claims 1, 5, 27-29, 32-33 under 35 U.S.C. 103(a) should be reversed.

Issue 2-Whether claims 12 and 14 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker, and further in view of Sassi?

Claims 12 and 14 are considered allowable by virtue of their dependencies from claim 1.

It is therefore respectfully submitted that the rejection of the dependent claims 12 and 14 under 35 U.S.C. 102(b) should also be reversed.

Issue 3-Whether claims 34 and 35 are patentable under 35 U.S.C. §103 over Colanzi, Yokoyama and Peisker, and further in view of Burgmann?

Claims 34 and 35 are considered allowable by virtue of their dependencies from claim 1.

It is therefore respectfully submitted that the rejection of the dependent claims 34 and 35 under 35 U.S.C. 102(b) should also be reversed.

(8) CONCLUSION

Appellant has invented a novel and inventive lip-type shaft seal which is constructed on the basis of specific numerical limitations in particular for configuring the axial sealing lip to attain optimum sealing capabilities.

The applied prior art does neither teach nor suggest the essential features as defined in claim 1 of the present invention but merely may disclose at some point an element of the present invention but not the novel and inventive combination. The question of obviousness is, however, not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed. (In re Sernaker, 702 F.2d 989, 217 U.S.P.Q 1, C.A.F.C. 1983).

When considering the arguments set forth by the Examiner in the final rejection, appellant believes that the Examiner relied on hindsight in reaching his obviousness determination. As the C.A.F.C stated in W.L. Gore, 721 F.2d at 1553, 220 U.S.P.Q. at 312-313) "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher". Thus, the use of hindsight reconstruction to pick and choose among isolated disclosures in the prior art to reject a claimed invention is ill-advised.

Therefore, the rejection of claim 1 on the applied prior art is not well taken.

The comments made above are similarly applicable to all of the remaining claims because all of these depend from claim 1 and share all features thereof. It is well settled that a dependent claim which depends on an allowable parent claim shares in the allowability and this is therefore true of the remaining claims in the application.

For the above stated reasons, it is respectfully submitted that the rejection of the claims 1, 5, 12, 14, 27-29 and 32-36 issued by the examiner on the references should be reversed.

Respectfully submitted,
INA-Schaeffler KG

By: ______________________
Henry M. Feiereisen
Agent for Applicant
Reg. No.: 31,084

Date: November 7, 2005
350 Fifth Avenue, Suite 4714
New York, N.Y. 10118
(212) 244-5500
HMF:af

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(9) CLAIMS APPENDIX

1. A lip-type shaft seal for sealingly separating pressure compartments, in particular for sealing two components movable relative to one another, comprising:

a seal body defining a symmetry axis and made of elastic material which has a Shore A hardness of ≤ 75, said seal body having a first radial sealing lip for placement in a pocket and terminating in a second axial sealing lip, said radial sealing lip having a sealing edge and bearing against a rotating component, which extends in a direction of the symmetry axis, said axial sealing lip having a sealing edge which, in installed state, rests against a contact surface oriented radially to the symmetry axis;

a spring element for urging the sealing edge of the radial sealing lip against the rotating component; and

a reinforcing element integrated in a radial sealing portion of the seal body so as to be embraced by one side of the sealing portion,

wherein the axial sealing lip extends at an angle of ≥ 35° in relation to the symmetry axis, when the axial sealing lip has not been installed yet and is under no tension,

wherein the axial sealing lip extends from the sealing edge of the radial sealing lip at a length of ≥ 1.4mm, when the axial sealing lip has not been installed yet,

wherein the axial sealing lip rests against the contact surface at an axial overlap of 0.05 to 0.55 mm, when being installed.

5. The shaft seal of claim 1, wherein the axial sealing lip has a wall thickness which tapers from the sealing edge of the radial sealing lip from $\geq$ 0.9 mm to $\geq$ 0.2 mm, when the seal body is under no tension.

12. The shaft seal of claim 1, wherein the contact surface has a texture.

14. The shaft seal of claim 1, wherein the axial sealing lip has a textured end surface, wherein at least one of the textured end surface and the sealing edge of the axial sealing lip is constructed for abutment against the contact surface, wherein the contact surface is flat or textured.

18. The shaft seal of claim 1, wherein the axial sealing lip has an inside surface formed with a twist element pointing in a direction to the contact surface and toward the symmetry axis for realizing a change in twist.

27. The shaft seal of claim 1, wherein the spring is a garter spring in surrounding relationship to the radial sealing lip and defined by a diameter, said garter spring being received in an annular groove of a diameter, wherein $\frac{D_0}{D} \geq 1.1$, with D_0 being the diameter of the groove and D being the diameter of the garter spring.

28. The shaft seal of claim 27, wherein the diameter of the garter spring is $\leq$ 1.3 mm.

29. The shaft seal of claim 27, wherein the diameter of the garter spring is $\leq$ 1.1 mm.

32. The shaft seal of claim 1, wherein the seal body is made of elastomer.

33. The shaft seal of claim 32, wherein the seal body is made of HNBR.

34. The shaft seal of claim 1, wherein the seal body is made of fluorocarbon rubber.

35. The shaft seal of claim 1, wherein the seal body is made of fluorocarbon rubber selected from the group consisting of FPM and FKM.

36. The shaft seal of claim 1 for use as seal for a rolling-contact bearing in a water circulating pump of an internal combustion engine, wherein the sealing edge of the radial seal body is supported directly on the rotating component.

(10) EVIDENCE APPENDIX

NONE

(11) RELATED PROCEEDINGS APPENDIX

NONE